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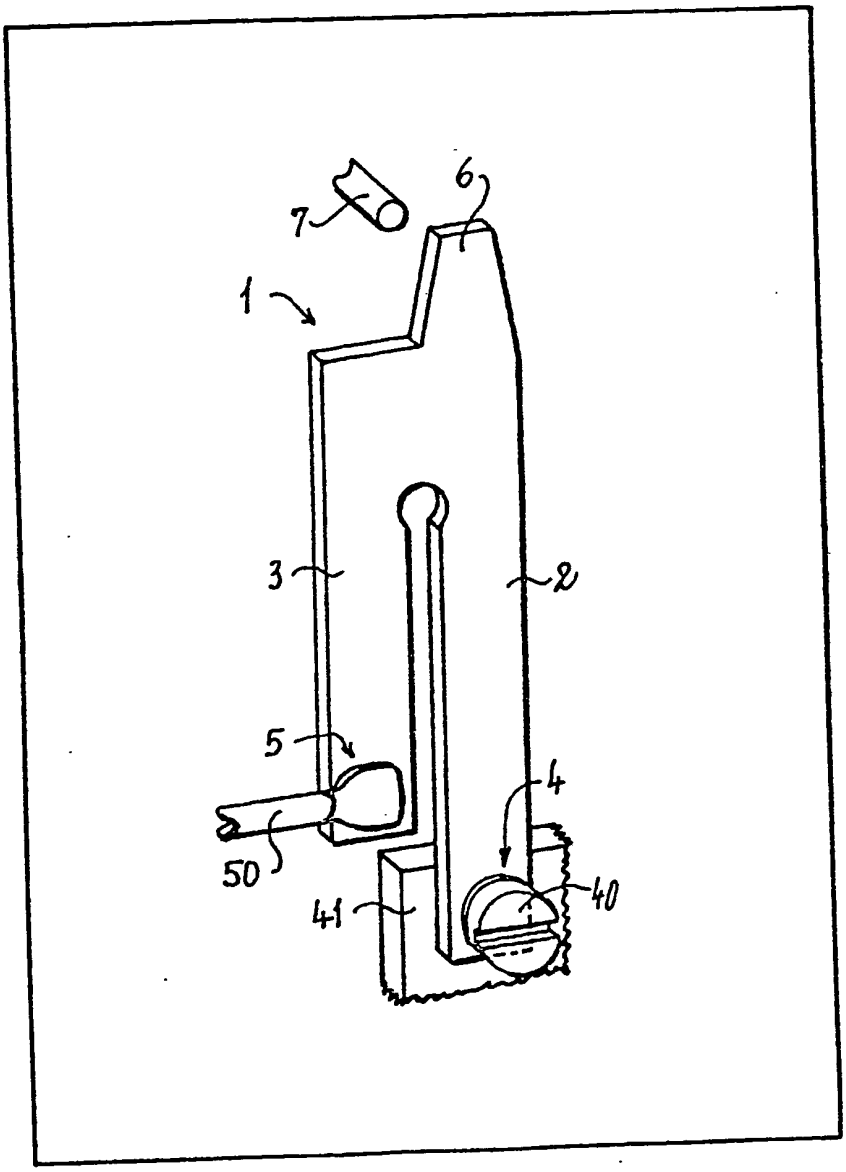
(54) Bimetallic Thermo-actuator for Overload Switches

(57) A bimetallic thermo-actuator for overload switches comprises a U-shaped bimetallic strip (1) both legs (2, 3) of which lie side by side in the plane of the strip. At a connexion point (4) for feeding current through the strip, one leg (2) is fixedly attached to a stationary part (41) of the thermo-actuator. The other leg (3) is connected at a connexion point (5) with a flexible conductor (50). This improves the reliability and avoids the isolation problem which otherwise arises with bimetallic strips.



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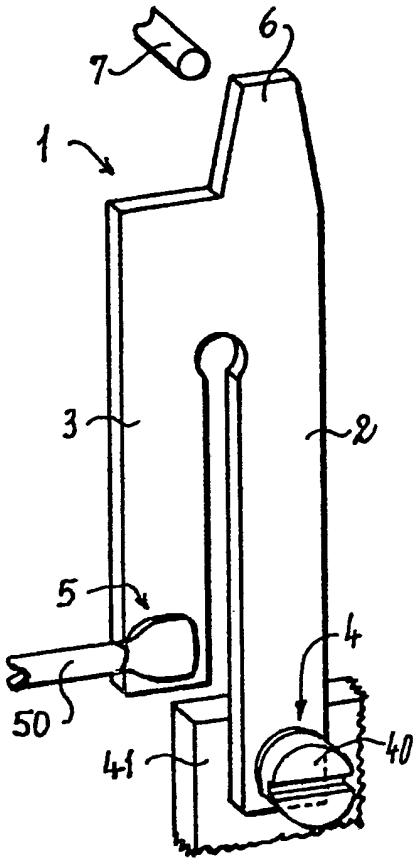
7
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SPECIFICATION

Bimetallic Thermo-actuator for Overload Switches

This invention relates to a bimetallic thermo-actuator for overload switches.

U-shaped bimetallic strips cut out of a single piece of bimetallic sheet are described for instance in the German Patent DE-PS 959 383. Each leg of the U is physically connected to a conductor and to a stationary mechanical support, the connexion points being mutually isolated. This isolation is relatively costly.

According to the German laying-open publication DE 24 48 024 this costly isolation can be avoided by placing the electrical connections at two opposed ends of a bimetallic strip. One end is then electrically connected to a resting terminal, whilst the movable working end is connected to a flexible conductor. The latter can then exert an unwanted influence on the function of the actuator, and moreover makes for a geometrically disadvantageous outlay.

The invention aims at providing a reliable, economically advantageous bimetallic thermo-actuator for overload switches.

To this end the invention proposes a bimetallic thermo-actuator for overalod switches comprising a generally U-shaped bimetallic strip with two legs arranged side by side in the plane of the strip, said legs each having a connexion point for feeding the current used for direct heating of the strip, wherein the bimetallic strip is rigidly fixed only at the connexion point of one of its legs, whilst at the connexion point of the other leg said strip is connected with a flexible terminal lead.

Because the legs of the bimetallic strip lie side by side they can withstand said repulsive force practically without distorting, so that the function of the actuator is not impaired.

As only one leg is stationary, no complicated isolation is necessary.

It is advantageous to have the flexible connecting conductor protrude laterally, so that it has virtually no influence on the movement.

The stationary leg can preferably be longer than the other one, so as to obviate the danger of accidental contacts in the vicinity of the connexion points.

In what follows the invention shall be discussed with reference to the appended, very schematical partial drawing of a bimetallic actuator according to the invention.

The U-shaped bimetallic strip 1 has two legs 2 and 3, each of which exhibits a connexion point 4 and 5, respectively, for feeding the current which flows through the bimetallic strip 1 in order to heat it up.

The working end 6 of the bimetallic strip is positioned opposite a piece—which is sketched in the shape of a rod 7—through which a tripping mechanism of known design can be actuated by the bimetallic strip 1.

At its connecting end 4 the bimetallic strip 1 is secured to a stationary part 41 of the thermoactuator, by way of a screw 40, which may serve to clamp a connecting terminal lead (not shown). If, as usually is the case, part 41 is made of metal, then the connexion point 4 of the leg 2 can also be soldered onto it, which hitherto was not possible. The screw 40 could then be disposed with or be provided on part 41. However it is also possible to solder the terminal lead, which is not shown in the drawing, either directly to the leg 2 or to part 41. In any case the leg 2 is immobilised at its connexion point 4.

Contrariwise the leg 3 in essence can be moved freely, being only soldered at its connexion point 5 to a flexible terminal lead 50, thus avoiding the isolation problems which otherwise do arise. Due to the fact that, as shown in the drawing, the terminal lead 50 protrudes perpendicularly sideways and lies essentially in the same plane as the bimetallic strip 1, it does in no way impede the necessary movements of said strip 1. This favourable arrangement, which is shown in the drawing, may be realised even if further along its length the terminal lead does turn away to point in some other direction.

Claims

1. A bimetallic thermo-actuator for overload switches comprising a generally U-shaped bimetallic strip with two legs arranged side by side in the plane of the strip, said legs each having a connexion point for feeding the current used for direct heating of the strip, wherein the bimetallic strip is rigidly fixed only at the connexion point of one of its legs, whilst at the connexion point of the other leg said strip is connected with a flexible terminal lead.

2. A bimetallic thermo-actuator according to claim 1 characterised in that the leg having said rigidly fixed connexion point is longer than the other leg.

3. A bimetallic thermo-actuator according to any one of the preceding claims characterised in that for at least part of its length the flexible terminal lead extends transversally sideways from its leg, but approximately in the plane of the strip.

4. A bimetallic thermo-actuator substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

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